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GUI Design for Android Apps

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Contents at a Glance

Introduction

This mini book is a collection of four chapters pulled from *Android Application Development for the Intel Platform*, designed to give developers an introduction to creating great user interfaces for their Android applications. These chapters cover topics ranging from the differences between developing UIs for desktop systems and embedded systems to optimizing the UI of applications for touchscreens.

Chapter 1

This chapter introduces the general GUI design method for desktop systems and then shows how designing the UI and UX for embedded systems is different. Next, it discusses general methods and principles of GUI design for Android applications and how to develop user interfaces suitable for typical user interaction on Android smartphone and tablets.

Chapter 2

This chapter introduces Android interface design by having you create a simple application called GuiExam. You learn about the state transitions of activities, the `Context` class, intents, and the relationship between applications and activities. Finally, the chapter shows how to use the layout as an interface by changing the layout file `activity_main.xml`, and how the button, event, and inner event listeners work.

Chapter 3

In this chapter, you learn how to create an application with multiple activities. This application is used to introduce the explicit and implicit trigger mechanisms of activities. Next, you see an example of an application with parameters triggered by an activity in a different application, which will help you understand of the exchange mechanism for the activity's parameters.

Chapter 4

This chapter introduces the basic framework of drawing in the view, how the drawing framework responds to touchscreen input, and how to control the display of the view as well as the multi-touch code framework. Examples illustrate the multi-touch programming framework and keyboard-input responses. You also learn how to respond to hardware buttons on Android devices, such as Volume +, Volume -, Power, Home, Menu, Back, and Search. After that, you see the three different dialog boxes for Android, including the activity dialog theme, specific dialog classes, and toast reminders. Finally, you learn how to change application property settings.

CHAPTER 1

GUI Design for Android Apps, Part 1: General Overview

Since its emergence in the 1980s, the concept of the *graphical user interface* (GUI) has become an indispensable part of *human-computer interaction* (HCI). As embedded systems have evolved, they have gradually adopted this concept as well. The Android embedded OS running on the Intel Atom hardware platform is at the forefront of this movement.

Because resources are limited, the GUI design of Android systems is more challenging than that of desktop systems. In addition, users have more rigorous demands and expectations for a high-quality user experience. Interface design has become one of the important factors in determining the success of systems and applications on the market. This chapter introduces how to develop user interfaces suitable for typical user interaction on Android embedded systems.

Overview of GUIs for Embedded Applications

These days, the user interface (UI) and user experience (UX) of software are increasingly important factors in determining whether software will be accepted by users and achieve market success. UX designs are based on the types of input/output or interaction devices and must comply with their characteristics. Compared to desktop computer systems, Android systems have different interaction devices and modalities. If a desktop's UI designs are copied indiscriminately, an Android device will present a terrible UI and unbearable UX, unacceptable to users. In addition, with greater expectations for compelling user experiences, developers must be more meticulous and careful in designing system UIs and UXs, making them comply with the characteristics of embedded applications.

This chapter first introduces the general GUI design method for desktop systems and then shows how designing UIs for embedded systems is different. The aim is to help you quickly master general methods and principles of GUI design for Android applications.